Q & A

1. There is no specification as to how to read the 3-axis measurements from the linear encoders and this can be accomplished a number of ways; the most typical is with a **3-axis Digital Readout unit**, similar to a Quadra-Chek ND 1203. Can the specification be modified to include some method of readout?

   A: The preference is that the microscope have a 3-axis digital readout unit to display the readout of the linear encoders.

2. There is no **resolution specification for the 3 axes**, which is typically listed at 0.5um. Can the specification be modified to include this?

   A: The preference is that the encoders have a maximum encoder resolution of 0.5 microns.

3. The specification lists a motorized stage but does not list the method of moving it. Should we only rely on software or is **XYJoystick control**required?

   A: The preference is that the motorized stage have x-axis and y-axis joystick control.

4. There is no specification for the trinocular head; does the end user want a fixed 20-degree tilt to the eyepieces or a **tilting trinocular head**?

   A: The preference is that the microscope have a tilting trinocular head.

5. There are many high-resolution cameras on the market. Some capture high resolution images by a process called "pixel-shifting", which effectively shifts a 1.3 megapixel camera chip to capture 9 images that are then processed to produce one higher resolution image. This pixel-shifting process can add artifacts and color shifts which adversely affect images of wafers and electronics. The process also takes additional time to capture the 9 images and interpolate them into one. **Is this pixel-shifting type camera sufficient to meet this specification or does the end user want a non-pixel-shifting 16.25 megapixel camera that captures the image in one quick shot and does not cause artifacts?**

   A: The preference is that the camera be a non-pixel-shifting type camera.

6. There are no **software requirements**listed, which is an important part of any system. If the end user wants any of the following features, can they be added to the specification?
   a. Measurements through the camera: XY, Area, Angle
   b. Annotations and Text
   c. Image Enhancements
   d. Large Image Tiling
   e. EDF (Extended Depth-of-Focus): The ability to capture images at multiple focal planes to create one in-focus image of a thick sample. Also has the ability to create a 3D surface rendering.
   f. HDR (High Dynamic Range): Adjusts exposure times for images with dark/bright features so they are correctly exposed.

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A: The preference is that the software have at least the capability of taking digital photographs. The capabilities listed in 6.a-6.f above are not required for this application and therefore were not included in the technical specification

7. Are bidders supposed to supply an advanced 64-bit imaging workstation and 24" monitor with the system? If so, a typical system suitable for such a microscope and camera would most likely have at least a Xeon 3.7 4-core processor, 32GB of RAM, 4TB of Hard Drive space and a 1GB Graphics Card to be useful. It would be helpful if there were a guideline as to what we should quote

   A: The preference is that the electronic hardware (computer, monitor, etc.) to support the camera have at least the capability to display the camera video on the monitor and be able to capture, store and retrieve digital photographs.